FLOODS IN MISSOULA, MONTANA

How To Avoid Damage

POSSIBLE SOLUTIONS

To begin a realistic program of flood damage reduction, Missoula must know the elevations that future floods can be expected to reach and areas which may be flooded. These data are available.

Floods prior to May 1948, with the exception of the devastating June 1908 flood did not cause extensive damage in Missoula because of the limited development in the flood plain. As time passes, however, and residential and industrial development increases, there will be an ever greater demand for building sites in the city. Unless properly regulated, some of these sites could be on land vulnerable to serious flood damage. A further danger is that new developments in the flood plain, if unregulated, could be so constructed as to restrict the flow of water and thus increase flood heights and damage upstream.

Flood data and reasonable regulations can be used to guide and control developments in flood hazard areas and to prevent an increase in flood damage. Such controls have been adopted by scores of cities and have become accepted as a practical approach to safe development and to prevention of flood disasters. The adoption of flood plain regulations would not prevent the use of the area for parks and other open-type facilities that would not be damaged by flooding.

Corrective measures may include floodproofing to make existing and proposed structures less vulnerable. This involves permanently closing lower openings, using flap valves on sewer openings, waterproofing walls and floors, installing removable bulkheads over entrances, and other changes.

This folder has been prepared from data in the Corps of Engineers report, "Flood Plain Information, Clark Fork in Missoula, Montana." Copies of that report and this folder are available from the Office of the Mayor of Missoula, Montana and the Montana State Water Resource Board.

MAY 1948 FLOOD

CLARK FORK WATERSHED
ABOVE MISSOULA

SCALE: 10 0 10 20 30 40 50 60 MILES

Montana State
Water Resources Board
November 1967

FLOODS IN MISSOULA

Since 1929 the Clark Fork at Missoula has left its banks 7 times. During most of these past floods, damage has generally been limited to roads and agricultural developments, but a few floods have been large enough to cause damage to present developments in Missoula.

A large flood now could seriously affect the Missoula community. Businesses, homes, and transportation facilities in the flood plain would bear the brunt of the misfortune, but the economy and general welfare of the entire community would be affected.

This recurring damage need not happen. Data to guide safe community development and methods for reducing future flood damage are available. The Montana State Water Resource Board feels that the citizens should be aware that large floods may be expected, and that damage can be greatly reduced only if such precautionary measures are taken.

PAST FLOODS

The highest known flood on the Clark Fork in the vicinity of Missoula was that of June 1908. The May 1948 and June 1964 floods were about six feet lower.

Floods on streams in this area are most frequent in spring. Most of the floods have resulted from melting snow during this time, though some floods have been augmented by heavy rains.

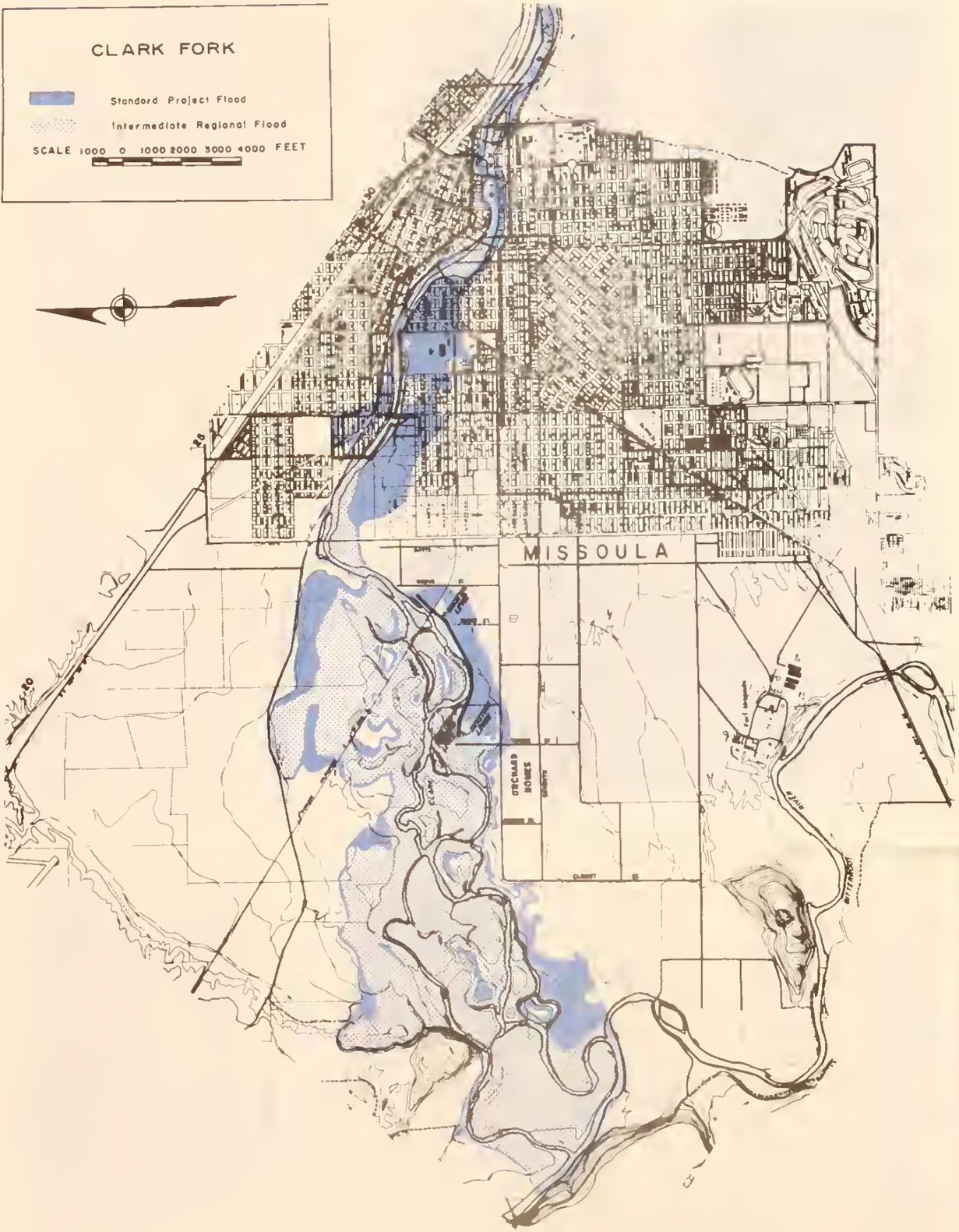
MAY 1948 FLOOD

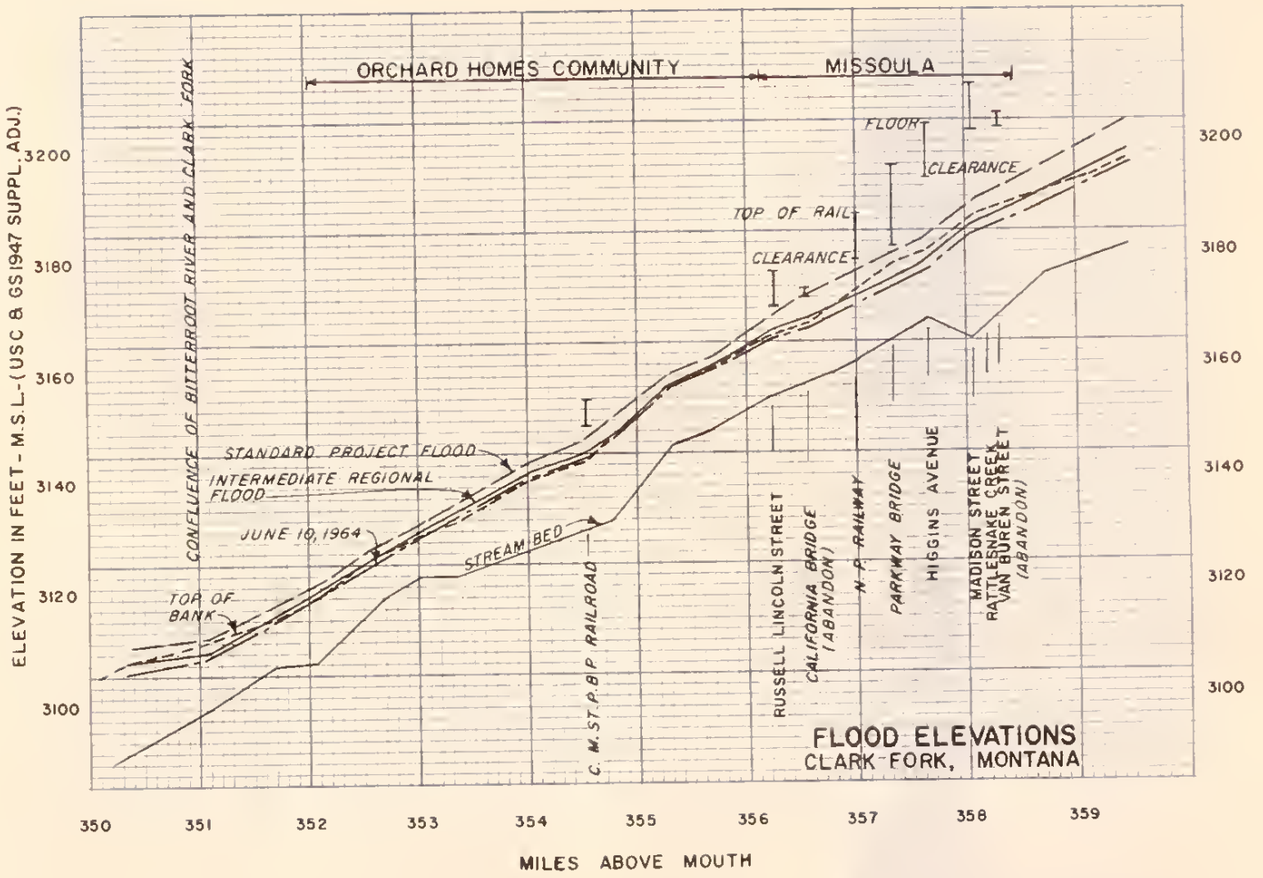
FUTURE FLOODS

Floods higher than those of the past can occur. A study of floods and storms occurring in the area surrounding Missoula indicates that future floods could be significantly higher than past floods.

An Intermediate Regional Flood was determined from consideration of known floods that have occurred on Clark Fork and on similar neighboring streams. A flood of this magnitude on Clark Fork would be about 1 to 2 feet higher than the June 1964 flood. The Standard Project Flood represents a reasonable upper limit of expected flooding. Such a flood on Clark Fork, based upon storms and floods which have already occurred on this watershed and in the region, would be significantly higher than previous floods on the Clark Fork in the vicinity of Missoula by 3 to 7 feet.

Pictures in this folder show heights that future floods could reach at selected locations.


CLARK FORK
Standard Project Flood
Intermediate Regional Flood
SCALE 1000 0 1000 2000 3000 4000 FEET
MISSOULA
ORCHARD HOMES SUBDIVISION
CLARK FORK
BITTERROOT RIVER


ORCHARD HOMES COMMUNITY
MISSOULA
ELEVATION IN FEET - M.S.L. - (USC & GS 1947 SUPPL. ADJ.)
3200
3180
3160
3140
3120
3100
CONFLUENCE OF BITTERROOT RIVER AND CLARK FORK
FLOOR
CLEARANCE
TOP OF RAIL
CLEARANCE
STANDARD PROJECT FLOOD
INTERMEDIATE REGIONAL FLOOD
JUNE 10, 1964
STREAM BED
TOP OF BANK
C. M. ST. P. & P. RAILROAD
RUSSELL LINCOLN STREET
CALIFORNIA BRIDGE (ABANDON)
N. P. RAILWAY
PARKWAY BRIDGE
HIGGINS AVENUE
MADISON STREET
RATTLESNAKE CREEK
VAN BUREN STREET (ABANDON)
FLOOD ELEVATIONS
CLARK FORK, MONTANA
350
351
352
353
354
355
356
357
358
359
MILES ABOVE MOUTH


STO PROJ FLOOD
INT REG FLOOD


STO PROJ FLOOD
INT REG FLOOD